(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property Organization International Bureau



(43) International Publication Date 13 October 2005 (13.10.2005)

(10) International Publication Number WO 2005/094521 A2

(51) International Patent Classification:

Not classified

(21) International Application Number:

PCT/US2005/009835

(22) International Filing Date: 23 March 2005 (23.03.2005)

(25) Filing Language:

English

(26) Publication Language:

English

(30) Priority Data: 60/555,515

23 March 2004 (23.03.2004) US

(71) Applicant (for all designated States except US): GEOR-GIA TECH RESEARCH CORPORATION [US/US]; 505 Tenth Street, NW, Atlanta, GA 30332-0415 (US).

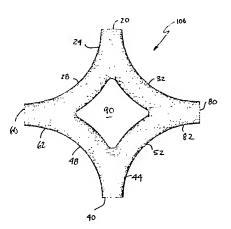
(72) Inventors; and

(75) Inventors/Applicants (for US only): SOERENSEN, Dennis, Dam [DK/US]; 5185 Afton Way SE, Smyrna, GA 30080 (US). DASI, Lakshmi, Prasad [IN/US]; 914 Collier Road, #6203, Atlanta, GA 30318 (US). PEKKAN, Kerem [TR/US]; 578 Woodland Hills Drive, Athens, GA 30606 (US). DE JULIEN DE ZELICOURT, Diane [FR/US]; 268 South Colonial Homes Circle, Atlanta. GA 30309 (US). YOGANATHAN, Ajit, P. [US/US]; 3555 Castleridge Drive, Tucker, GA 30084 (US).

- (74) Agents: SCHNEIDER, Ryan A. et al.; Troutman Sanders LLP, 600 Peachtree Street, Suite 5200, Atlanta, GA 30308 (US).
- (81) Designated States (unless otherwise indicated, for every kind of national protection available): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SM, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.
- (84) Designated States (unless otherwise indicated, for every kind of regional protection available): ARIPO (BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

[Continued on next page]

(54) Title: ANATOMICAL CONNECTION



(57) Abstract: A device for use in the total cavopulmonary connection (TCPC) in order to optimize its hemodynamics. Although the current procedure of choice for single ventricle heart repairs, the TCPC has reduced the post-operative mortality to the level of simpler types of congenital heart disease repairs, Fontan patients are still subjected to serious long-term complications. The TCPC procedure, which restores the vital separation between oxygenated and deoxygenated blood, also leads to an increased workload for the remaining single ventricle, as it is now responsible for pumping the blood through both the systemic and pulmonary circulation. The present device reduces this workload by altering the surgically created design of the TCPC. Improved fluid mechanics and reduced energy dissipation at the connection site translates into less work for the single ventricle and improved transport of deoxygenated blood to the lungs, which may in turn contribute to improved post-operative results and quality of life.

Declarations under Rule 4.17:

as to applicant's entitlement to apply for and be granted a patent (Rule 4.17(ii)) for the following designations AE. AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SM, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, UZ, VC, VN, YU, ZA, ZM, ZW, ARIPO patent (BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR,

HU. IE. IS. IT. LT. LU. MC. NL. PL. PT. RO. SE. SI. SK. TR). OAPI patent (BF. BJ. CF. CG. CI. CM. GA. GN. GQ. GW. ML. MR. NE. SN. TD. TG)

- as to the applicant's entitlement to claim the priority of the earlier application (Rule 4.17(iii)) for all designations
- of inventorship (Rule 4.17(iv)) for US only

Published:

 without international search report and to be republished upon receipt of that report

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.